

LETTERS *to the Editor*

Further Words About DDT

To the Editor: There are many environmental problems that may affect health adversely. Accordingly, it is unfortunate that the cover of CALIFORNIA MEDICINE for November, 1970, and the article by Edgar Wayburn, "Man, Medicine and Ecology—An Overview," should have selected DDT as a main target, since DDT has been the greatest aid to medicine of any chemical in history.

Dr. Wayburn specifically selects for one of his criticisms the use of DDT in spraying walls to control malaria as a mosquito adulticide. The program based on this procedure was estimated to have saved 5 million lives and prevented 100 million illnesses in the first eight years of its use. The WHO commented that "no symptoms have been observed among the spraymen or among the inhabitants of the spray areas," numbering 130,000 and 535 million at the peak of the campaign.¹ Dr. Wayburn regales us with the latest version of the cat-rat story which I believe first appeared in 1962 as a Vietnam anecdote in the New York Times. The current "Sarawak variation" received the following comment by the WHO in 1969: "DDT as applied has not caused any side effects among domestic animals (the matter of the North Borneo cats as misinterpreted in TIME concerned Dieldrin, not DDT)."¹ It would be interesting to learn whether the cats died of, let's say, feline viral panleucopenia, and whether cats actually eat cockroaches.²

A further credibility gap is imposed by the fact that DDT is one of the least toxic of any of the pesticides to warm-blooded animals.³ The LD₅₀ of DDT for cats is about 300 mg per kilo of body weight.^{4,18} DDT has an LD₅₀ of 25 micrograms per insect for DDT-resistant cockroaches.⁵

A 5-kilo cat would have to eat 60,000 cockroaches in one day to ingest a lethal dose of DDT, assuming that the cockroaches had received an LD₅₀ sufficient to kill 50 percent of the cockroaches in a resistant population. Under such circumstances, the death of the cat might be due to (a) ruptured intestines from impaction by the cockroaches (b) physical exhaustion—the cat would have to catch 42 cockroaches per minute for 24 hours. There remains the question of the wall geckos. Since these animals are poikilothermic, they are probably more susceptible to DDT than are mammals. This would pose a problem for the cats in having to eat more than their own weight of geckos to obtain a lethal dose of DDT. However, the cats would probably be too busy chasing cockroaches to catch many geckos. The cat-cockroach relationship has been discussed by Marquis.²

Dr. Wayburn also states that "DDT is now present in human mother's milk in concentration considered illegal for animal milk by the U.S. Food and Drug Administration." This is an incomplete story. The DDT tolerance in cow's milk was set at less than one one-hundredth of the tolerance for other foods. This latter tolerance was set at one one-hundredth of the estimated LD₅₀, so DDT has a legal tolerance in milk of less than one ten-thousandth of the estimated toxic level. I know of no other substance, even water, that would pass such a requirement. Wayland Hayes, M.D., commented on June 4, 1970: "There is nothing new about the presence of DDT in human milk; it is just the relationship of its concentrations in human and cow's milk that was noted in 1965 and completely misinterpreted recently by persons without training in medicine."⁶ Dr. Hayes was chairman of the meeting that set the "permissible rate" for DDT intake by breast-

fed infants. He also comments that preweanling rats are more than twice as resistant as adults to DDT, and newborn rats are more than 20 times as resistant as adults, and that the safety factor of the WHO "permissible rate" for infants is 150 times the dosage of DDT which was given daily for six months to a patient with jaundice.

An appraisal of DDT was made by the Committee on Occupational Toxicology of the A.M.A. (J.Amer.Med.Assoc., 212, 1055, 1970). The authors recommend continuation of the use of DDT under suitable precautions, and they state that careful research has shown no interference, despite long-continued exposure, with the health of pesticide handlers with concentrations of DDT in the fat as much as 50 times as high as in the general population.

No one should question the importance of studying and controlling pollution. For example, the dumping of mercury into lakes and streams is quite indefensible, and is an obvious hazard to health. In contrast, the proper use of DDT has been of great benefit in the control of disease, and evidence for harmful effects of DDT on human beings is lacking.

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To the Editor: Because of the way in which Ecology has suddenly been brought to public attention, the public and no doubt even many physicians are left unaware of the fact that for years there have been a substantial number of professional ecologists working with limited support and yet with considerable success to improve our environment for the benefit of *human beings*. (I emphasize human beings because those "ecolo-

gists" who have received most attention from the mass media seem to be primarily concerned with the health of rare birds and fishes.) Specifically, I refer to public health workers, foresters, and agricultural workers.

As a one-time public health worker, I know a good deal about the lack of support that has handicapped most workers in these fields whenever they have found themselves trying to enforce a health or conservation law which came into conflict with some politically well-connected real estate developer, oil driller or manufacturer. When that has happened, very often the public official has either been overridden by his political bosses or, if he was too resolute, has simply been fired or replaced by someone with more "understanding."

Now, to add to the problems that public health, conservation and agricultural workers have to face is the public confusion that has been created by the anti-DDT campaign set off by an assistant professor of chemistry—Charles Wurster—and a lawyer, Victor Yannecone.

The basic ecological facts about DDT are these:

1. It is the main cause of the population explosion in the three southern continents where malaria and other insect-borne diseases have been (and still are) the major causes of disability and death. There are no doubt hundreds of millions of people living today, and living in a state of health, who were it not for DDT would be living with chronic malaria or be dead.

2. Furthermore, were it not for the great increases in agricultural production that have resulted from the use of DDT, many of these people would have starved to death.

3. And this is the clincher. Though millions and millions of pounds of DDT have been manufactured by hundreds of chemical plant workers and sprayed by thousands of public health workers, not *one single death* has ever occurred in these workers. Of course they have been exposed to DDT in quantities many times that of the average person. And those who have worked for as long as 25 years in the Montrose DDT manufacturing plant have been examined periodically by the USPHS. If anything, they have enjoyed better than average health and have produced a substantial number of healthy offspring. There is *no other chemical in use to protect human health* with a record that comes close to this. To pin that down, I remind you that there are more than 200 deaths per year attributed to aspirin.